

REMARKS

Claims 1-4 stand pending in the present application. Applicants respectfully submit that the present application is in condition for allowance based on the discussion which follows.

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Baer in view of Yonemitsu et al (hereinafter "Yonemitsu"). The Examiner alleges that Baer teaches that fluoro alcohols can be oxidized to the corresponding acids by nitric acid. Further, the Examiner argues that the difference between the instantly claimed invention and that taught by Baer is that the instant process uses oxygen to reduce the amounts of nitric acid required. The Examiner then attempts to make up the deficiencies of Baer by alleging that Yonemitsu teaches the oxidation of ethylene glycol in the presence of nitric acid and molecular oxygen to produce oxalic acid. Further, the Examiner argues that one would have been motivated to apply the oxidation process of Yonemitsu to any nitric acid oxidation of alcohols including the oxidation of fluoro alcohols to the corresponding acids because Yonemitsu teaches (Examiner citing column 1, lines 27-49) that the use of oxygen eliminates the need for the use of a nitric acid regeneration system.

Contrary to the Examiner's allegations, the present invention is not taught by nor suggested from Baer in view of Yonemitsu. The present invention as recited in claim 1 is directed to a process for producing fluoroalkylalkylcarboxylic acid using nitric acid and feeding oxygen into the reaction system during the oxidation reaction to reduce the required amount of nitric acid to a stoichiometric amount or less relative to the fluoroalkyl alcohol.

Contrary to the present process, Yonemitsu teaches the oxidation of ethylene glycol in the presence of nitric acid and molecular oxygen to produce oxalic acid. In all the Examples (Examples 1 to 7) of Yonemitsu, oxygen gas is fed at the beginning (i.e., before the initiation) of the reaction and further supplied during the reaction.

In the oxidation of fluoroalkyl alcohol with nitric acid, however, if oxygen were to be fed (oxygen gas is present) at the beginning of the reaction, the reaction will not proceed. Therefore, the present process would not have been obvious to oxidize fluoroalkyl alcohol with nitric acid as claimed. With this response, Applicants have submitted a Rule 132 Declaration of Kazuyoshi Ichihara, one of the inventors of the present application, to further prove this point.

In the oxidation of fluoroalkyl alcohol with nitric acid, it is important to feed oxygen not at the beginning, but in the course of the reaction. By starting to feed oxygen at some point during the course of the reaction, the required amount of nitric acid can be reduced to a stoichiometric amount or less relative to the fluoroalkyl alcohol and the reaction pressure can also be controlled. This is evident from the Examples in the specification of this application.

Baer fails to disclose or suggest feeding oxygen other than at the beginning. Baer fails to disclose feeding oxygen in the course of the reaction as claimed.

Therefore, based on the foregoing discussion, the present invention is unobvious over a combination of Yonemitsu and Baer. Consequently, Applicants respectfully request that the rejection to claims 1-4 as being obvious under 35 U.S.C. § 103(a) be withdrawn.

In view of the foregoing, Applicants respectfully submit that upon consideration of the above remarks and enclosed declaration, the present application has been shown to be in condition for immediate allowance, and such action is earnestly solicited.

Respectfully submitted,

LARSON & TAYLOR, PLC



B. Aaron Schulman
Registration No. 31877

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1199 North Fairfax Street, Suite 900
Alexandria, Virginia 22314
(703) 739-4900